Gold
Resources and Energy Quarterly March 2019

- 315 tonnes of gold produced by Australia in 2018
- 9% of world mine gold supplied by Australia in 2017-18

Australia is the 2nd largest producer of gold in the world.

- World record find: Australia holds the record for the world's largest gold nugget weighing 72 kg, found in Victoria in 1869.

Key jewellery consumer markets (tonnes):
- Indonesia: 42
- Russia: 44
- Hong Kong: 51
- United States: 128
- India: 598
- China: 673

Global uses of gold (tonnes):
- 51% Jewellery
- 25% Gold coins and bars
- 15% Central Bank Reserves
- 7% Electronics and Industrial
- 1% Global Backed Exchange Traded Funds
- 1% Dental and medical

Major Australian gold deposits (tonnes):
- <20
- 21-70
- 71-165
- 166-473
- 474-1,027
- >1,028

Deposit
Operating mine
10.1 Summary

- Gold prices are projected to rise gradually over the next five years, to an average US$1,428 an ounce (2019 dollars) in 2024, as gold’s status as a safe haven asset fuels investor demand over the short term and world mine supply declines from 2020.
- World gold production is projected to fall after 2020, as some long and large established mine projects in Australia and other major gold producing countries reach life end. Global gold consumption is projected to fall after 2020, driven by falling central bank purchases and industrial demand.
- The value of Australia’s gold exports is forecast to peak in 2019–20 at nearly $22 billion (in 2018–19 dollar terms), driven by higher prices and export volumes. Export values are projected to decline to $16 billion by 2023–24, due to lower domestic production and export volumes.

10.2 Prices

Gold prices remained steady in 2018

The London Bullion Market Association (LBMA) gold price averaged US$1,299 an ounce in 2018, a fall of 1.5 per cent from 2017. In 2018, the US Federal Reserve increased the Federal funds rate four times (from 1.50 per cent to 2.50 per cent), and commenced reducing its balance sheet by selling US Treasuries and mortgage-backed securities. Both actions supported higher US Treasury bond yields (a common investment alternative to gold) and higher US dollar, which in turn kept downward pressure on gold prices for most of 2018. However, gold prices recovered in the fourth quarter of 2018, supported by the trade tensions between the US and its trading partners. The volatility in the global stock markets, and geopolitical factors in the Middle East have boosted the demand for gold as a safe haven asset.

Prices to rise in the short to medium term

Gold prices are projected to rise by around 2.1 per cent in 2019, to an average US$1,326 an ounce (real terms), driven by higher investor demand for gold as a safe haven asset (Figure 10.1). Slower economic growth is forecast across advanced and emerging economies — US, China, the Eurozone (Italy is currently in recession), and Japan. In the US, the need for further rate hikes in 2019 has declined amid concerns of slower economic growth, largely due to trade tensions. With further interest rate rises either delayed or unnecessary, the US dollar is likely to weaken modestly, removing a key headwind to higher gold prices.

Over the 5-year outlook period, gold prices are projected to rise around 1.6 per cent a year (real terms), to US$1,428 an ounce in 2024, supported by slowing economic growth in some major economies, weakness in world equity markets, and declining mine supply after 2020 (Figure 10.1).

Figure 10.1: Real gold prices


Consumption

World gold consumption rose in 2018

World gold consumption increased by 4.5 per cent in 2018, to 4,345 tonnes, led by central bank buying (up 74 per cent) — the highest level of purchases in 50 years — and retail investment (up 4.3 per cent). Some countries increased their gold purchases in order to diversify away from the US dollar. The Russian central bank purchased an average 20 tonnes
of gold a month in 2018. Poland, Hungary, Kazakhstan, Mongolia, and a number of other emerging market countries also increased gold purchases and reserves. A heavy sell-off in stock and bond markets in the fourth quarter of 2018 triggered a jump in gold demand by both institutional and retail investors. Industrial demand grew slightly (0.6 per cent) in 2018, driven by increased demand for consumer electronics and ongoing electrification in the automotive sector.

**Figure 10.2: World gold consumption by sector**

<table>
<thead>
<tr>
<th>Year</th>
<th>Jewellery</th>
<th>Industrial Fabrication</th>
<th>Investment</th>
<th>Net Official Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>800</td>
<td>1,600</td>
<td>2,400</td>
<td>4,000</td>
</tr>
<tr>
<td>2016</td>
<td>800</td>
<td>1,600</td>
<td>2,400</td>
<td>4,000</td>
</tr>
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<td>2018</td>
<td>800</td>
<td>1,600</td>
<td>2,400</td>
<td>4,000</td>
</tr>
<tr>
<td>2020</td>
<td>800</td>
<td>1,600</td>
<td>2,400</td>
<td>4,000</td>
</tr>
<tr>
<td>2022</td>
<td>800</td>
<td>1,600</td>
<td>2,400</td>
<td>4,000</td>
</tr>
<tr>
<td>2024</td>
<td>800</td>
<td>1,600</td>
<td>2,400</td>
<td>4,000</td>
</tr>
</tbody>
</table>


**Gold consumption expected to rise in the short term**

Global gold consumption is forecast to rise by 6.6 and 2.1 per cent in 2019 and 2020, to 4,630 and 4,728 tonnes, respectively (Figure 10.2). Ongoing trade tensions between the US and its trading partners, a global economic slowdown, steady US Treasury bond yields, a lower US dollar, and Brexit uncertainty are all expected to dampen consumer and business confidence, and boost safe haven demand for gold.

Some central banks are expected to increase their gold reserves in the short term. It is forecast that central banks’ gold buying will rise around 4 per cent a year in 2019 and 2020, to over 700 tonnes by 2020. Retail investment is expected to drive up global gold consumption, as the demand for gold bars and coins from South East Asia and the Middle East (particularly Iran) rises over the outlook period. In 2018, bar and coin demand in Iran rose by 100 per cent, Indonesia (10 per cent), Vietnam (9 per cent), and Thailand (7 per cent). Strong demand from these countries is expected to continue in the coming years.

**World gold consumption is expected to fall after 2020**

World gold consumption is projected to fall around 1.1 per cent a year between 2021 and 2024, to 4,517 tonnes in 2024, driven by falling central bank purchases and industrial demand (Figure 10.2). After reaching a peak of 711 tonnes in 2020, the pace of central bank purchases is expected to decrease by 11 per cent a year, falling to 396 tonnes in 2024. Over the outlook period, rising gold prices will escalate the process of substituting cheaper commodities for gold. As a result, gold consumption in industrial applications is projected to fall by around 2.0 per cent a year, to 285 tonnes in 2024.

Offsetting these falls is the expected rise in global jewellery consumption (increase at 3.6 per cent a year) from China and India — the world’s two largest jewellery markets. In China, the shift towards more fashionable (non-pure gold) pieces and an expansion into e-commerce gold sales should boost sales among young consumers and in 3rd and 4th tier cities. China’s discretionary spending on jewellery is projected to grow by 2 per cent a year, to 760 tonnes in 2024. However, a devaluation of the Chinese Renminbi (if expected trade tensions with the US continue) is likely to weaken the purchasing power of Chinese consumers to buy jewellery.

India’s economic growth is projected to grow by 7.7 per cent a year for the next five years — the fastest growing economy in the world. Strong economic growth and rising incomes will support higher jewellery consumption. Ongoing urbanisation, rising farm incomes, and improved sentiment should improve rural gold consumption, which accounts for 60 per cent of India’s gold market.
10.3 Production

World mine production grew marginally in 2018, rising just 0.8 per cent to 3,347 tonnes (Figure 10.3). Output benefited from new mines, which more than offset declines at established mines. Production in China — the world’s largest gold producer — declined by 8 per cent, to 396 tonnes. Stricter environmental regulation led to production cuts in China. However, production in Canada and Russia increased by 9.0 and 6.0 per cent in 2018, to 187 and 297 tonnes, respectively, with output in both nations benefiting from new mine production.

Total world gold supply is forecast to reach a peak of 4,536 tonnes in 2019, and then steadily decline to 4,161 tonnes in 2024 (Figure 10.3). In the short term, increasing total gold supply will be propelled by higher mine production, with scrap production forecast to be steady over the outlook period. From 2020, world gold supply is forecast to decline, due to a lack of new gold mining projects coming online. Canada’s Barrick Gold (the world’s largest gold miner) is optimistic about its output for 2019, forecasting an increase of 13 per cent to 159 tonnes of gold.

**Mined production set to decline over the short to medium term**

World mined production is projected to decline after the peak in 2018, as long established projects reach life end and few new projects and expansions take their place. World mine production is projected to fall from 3,347 tonnes in 2018 to 3,001 tonnes in 2024. Declining world mine production is expected across most major gold producing countries, and will be particularly evident in Australia — which is expected to account for over 153 tonnes of closing mined capacity between 2019 and 2024 (Figure 10.4).

China’s gold output is forecast to fall over the outlook period, as the country’s gold miners continue to adapt to stricter environmental regulation. The shift of Indonesia’s Grasberg gold mine’s operations from open mine to underground is likely to reduce its annual output by 58 tonnes between 2019 and 2021.
Recycled supply rises in the short term, but falls in the medium term

World scrap supply — gold that is recycled from jewellery, and reclaimed from old industrial and electronic equipment — rose by 1.4 per cent in 2018, to 1,173 tonnes. This rise followed a sharp fall (down 9.8 per cent) in 2017. The 2018 growth was driven by buoyant local gold prices and an economic downturn in Turkey and Iran.

Recycled gold supply is forecast to rise by 2.4 per cent a year in 2019 and 2020, to 1,205 and 1,230 tonnes, respectively, supported by higher gold prices. After 2020, recycled supply is projected to decline slightly, due to falling industrial demand.

10.4 Australia’s exports and production

Export values expected to peak in 2019–20

The value of Australia’s gold exports is forecast to set a record peak of nearly $22 billion (in real terms) in 2019–20, driven by higher prices and export volumes. Export volumes are forecast to peak in 2019–20, reaching 377 tonnes (Figure 10.5). Rising export volumes will be driven by higher local mine production, at a record 346 tonnes.

Export volumes and values are projected to decline after 2019–20, falling by 6.1 per cent annually to 293 tonnes, worth over $16 billion (2018–19 dollars) in 2023–24. The steady decline will be driven by lower domestic production and lower imports of gold ore from Papua New Guinea (PNG) for refining — gold ores from the Ok Tedi mine in PNG are shipped to the Perth Mint for further processing and re-export.

Figure 10.5: Australia’s gold exports


3.3 tonnes of gold a year. Northern Star’s Jundee expansion project (around 1.1 tonnes of gold per annum) is expected to be completed by 2020. Evolution Mining is expected to commence its Cowal gold mine expansion in March 2019. The expansion project is due to be completed in March 2020, adding about 0.3 tonnes of gold to the company’s annual production.

Lower production in the medium term

After reaching a peak in 2019–20, Australian mine production is projected to decline by 7.3 per cent annually to 255 tonnes in 2023–24 (Figure 10.6). Production will be weighed down by several mine closures, as mature assets approach their end of life. Gold Fields’ 7.5 tonnes per annum Agnew operations in WA is expected to end in 2021. Regis Resources’ 11 tonnes a year Garden Well gold project in WA is expected to close in 2023. Northern Star’s 9.4 tonnes per year Jundee gold operation in WA is also expected to cease production in 2023. Newcrest’s 13 tonnes per year Telfer gold operation in WA is expected to end its production life in 2024.
Declining production will be partly offset by several new mines that are expected to come online in the second half of the outlook period, including Vista Gold’s Mount Todd in the Northern Territory. Set to commence in 2021, Mount Todd is expected to become Australia’s fourth largest gold mine, producing 12 tonnes of gold annually. Regis Resources’ 6.8 tonnes per year McPhilamys gold project is expected to come online in 2020.

Figure 10.6: Australia’s gold production

Figure 10.7 shows gold production all-in sustaining cost (AISC) by selected major gold producing countries between 2019 and 2024. Australian gold producers are more competitive (lower AISC) than the US and South African gold producers, but less competitive (higher AISC) than Chinese, Canadian and Russian gold producers.

Exploration expenditure continues to increase

Australia’s gold exploration expenditure increased by 19 per cent in 2018 to $891 million — accounting for 41 per cent of Australia’s total minerals exploration expenditure during the year — likely driven by an expected rise in gold prices in 2019 and beyond. Western Australia remained the centre of gold exploration activity in Australia, accounting for 72 per cent (or $641 million) of total gold exploration expenditure (Figure 10.8).
Table 10.1: Gold outlook

<table>
<thead>
<tr>
<th></th>
<th>Unit</th>
<th>2018</th>
<th>2019f</th>
<th>2020f</th>
<th>2021f</th>
<th>2022z</th>
<th>2023z</th>
<th>2024z</th>
<th>CAGRr</th>
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<td>t</td>
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<td>4,630</td>
<td>4,728</td>
<td>4,497</td>
<td>4,502</td>
<td>4,423</td>
<td>4,517</td>
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<td>Fabrication consump[b]</td>
<td>t</td>
<td>2,535</td>
<td>2,414</td>
<td>2,562</td>
<td>2,661</td>
<td>2,702</td>
<td>2,744</td>
<td>2,787</td>
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<tr>
<td>Mine production</td>
<td>t</td>
<td>3,347</td>
<td>3,330</td>
<td>3,254</td>
<td>3,202</td>
<td>3,099</td>
<td>3,050</td>
<td>3,001</td>
<td>-1.8</td>
</tr>
</tbody>
</table>

Price[c]

|                      | Nominal US$/oz | 1,269 | 1,326  | 1,388  | 1,437  | 1,480  | 1,539  | 1,593  | 3.9   |
|                      | Real[^] US$/oz | 1,299 | 1,326  | 1,357  | 1,375  | 1,386  | 1,410  | 1,428  | 1.6   |

Australia

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Mine production</td>
<td>t</td>
<td>303</td>
<td>324</td>
<td>346</td>
<td>339</td>
<td>322</td>
<td>284</td>
<td>255</td>
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<tr>
<td>Export volume</td>
<td>t</td>
<td>348</td>
<td>324</td>
<td>377</td>
<td>370</td>
<td>353</td>
<td>319</td>
<td>293</td>
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<tr>
<td>– nominal value</td>
<td>A$m</td>
<td>18,888</td>
<td>18,502</td>
<td>22,432</td>
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<td>22,236</td>
<td>19,972</td>
<td>18,306</td>
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<td>– real value[^]</td>
<td>A$m</td>
<td>19,264</td>
<td>18,502</td>
<td>21,906</td>
<td>21,492</td>
<td>20,670</td>
<td>18,108</td>
<td>16,189</td>
<td>-2.9</td>
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</tbody>
</table>

Price[^]

|                      | nominal A$/oz | 1,674 | 1,754  | 1,852  | 1,896  | 1,958  | 1,949  | 1,945  | 2.5   |
|                      | real[^] A$/oz | 1,708 | 1,754  | 1,809  | 1,807  | 1,820  | 1,767  | 1,720  | 0.1   |

Notes: b includes jewellery consumption and industrial applications; c London Bullion Market Association PM price; d In 2019 calendar year US dollars; e In 2018–19 financial year Australian dollars; f Forecast; z Projection; r Compound annual growth rate for the period from 2018 to 2024, or from 2017–18 to 2023–24.